

What is Claimed is:

1. In a multi-node network comprising a plurality of distributed switching nodes, a method implemented in at least one of the plurality of nodes for routing information entering the node over a first channel to one of a plurality of other channels, the method comprising:

obtaining priority information for the information;

ascertaining a remaining communication length for the information for each of the plurality of other channels;

determining a current demand for each of the plurality of other channels; and

routing the information entering at the first channel to one of the other channels based upon an evaluation that considers a combination of the obtained priority information, the ascertained communication length for each of the plurality of other channels, and the current demand for each of the plurality of other channels.

2. The method of claim 1 further comprising determining a demand for channels coupled to remote nodes between a current node and a destination node and utilizing this information in determining a channel over which to route the information

3. The method of claim 1 further comprising obtaining a destination node from a header portion of the information.

4. The method of claim 1, wherein ascertaining a remaining communication length more specifically comprises ascertaining a quantifiable identification of a number of intermediate nodes that the information will traverse before reaching a destination node.

5. The method of claim 1, wherein the obtaining priority information more specifically comprises retrieving a priority indicator from a header portion of the information.

6. The method of claim 1, wherein the obtaining priority information more specifically comprises evaluating a payload portion of the information.

7. The method of claim 1, wherein the ascertaining the remaining communication length comprises receiving and evaluating information communicated from other nodes in the network.

8. The method of claim 1, wherein the ascertaining the remaining communication length comprises computing the communication length based on *a priori* information about the network.

9. The method of claim 1, wherein the determining the current demand for each of the plurality of other channels comprises evaluating a state of an output queue for each of the other channels.

10. The method of claim 1, wherein the routing the information comprises a substantially balanced weighting of the obtained priority information, the ascertained communication length, and the current demand.

11. The method of claim 1, wherein the routing the information comprises an unbalanced weighting of the obtained priority information, the ascertained communication length, and the current demand.

12. The method of claim 1, wherein the information is embodied in a packet.

13. The method of claim 1, wherein the information is embodied in a flit.

14. The method of claim 1, wherein the information is embodied in a plurality of flits that collectively comprise an information packet.

15. The method of claim 14, wherein the routing is performed on a per-flit basis.

16. The method of claim 14, wherein the routing is performed on a first flit, and remaining flits in information packet are routed to the same other channel as the first flit.

17. In a multi-node network comprising a plurality of distributed switching nodes, a method implemented in at least one of the plurality of nodes for routing information out of the node over a first channel from one of a plurality of other channels, the method comprising:

obtaining priority information for information entering the node for each of the plurality of other channels;

ascertaining a remaining communication length for a information entering the node for each of the plurality of other channels;

determining a current demand the first channel; and

routing the information entering at one of the other channels to the first channel based upon an evaluation that considers a combination of the obtained priority information for each of the plurality of other channels, the ascertained communication length for each of the plurality of other channels, and the current demand for the first channel.

18. The method of claim 17, further comprising determining a demand for channels coupled to remote nodes between a current node and a destination node and utilizing this information in determining a channel over which to route the information

19. The method of claim 17, wherein the routing the information comprises a substantially balanced weighting of the obtained priority information, the ascertained communication length, and the current demand.

20. The method of claim 17, wherein the routing the information comprises an unbalanced weighting of the obtained priority information, the ascertained communication length, and the current demand.

21. A node for routing information entering the node over a first channel to one of a plurality of other channels in a multi-node network comprising a plurality of distributed switching nodes, the node comprising:

logic configured to obtain priority information for the information;

logic configured to ascertain a remaining communication length for the information for each of the plurality of other channels;

logic configured to determine a current demand for each of the plurality of other channels; and

logic configured to route the information entering at the first channel to one of the other channels based upon an evaluation that considers a combination of the obtained priority information, the ascertained communication length for each of the plurality of other channels, and the current demand for each of the plurality of other channels.

22. The method of claim 1, wherein the logic configured to route the information is configured to route the information based upon a substantially balanced weighting of the obtained priority, the ascertained communication length, and the current demand.